Always take the weather with you

INTEGRATING PERSONAL WEATHER STATIONS INTO A LIGHTING CONTROL SYSTEM OFFERS CLIENTS GREATER FREEDOM AND INSTALLERS A GREATER RETURNS. **HARRY SIMIDIS** EXPLAINS.

It would appear that the days of weather stations being the exclusive domain of storm chasers and weather buffs are long gone. A weather station can now be used by anyone, you just need to know how.

These stations can accurately tell home owners what is going on outside their front door, as far as the heavens are concerned, and some can even provide useful weather forecasts for your immediate surrounds.

A basic weather station consists of sensors, a display screen and software for a PC to interface with all of the recorded data. The sensors usually consist of an anemometer (to measure wind speed and direction), a self-emptying rain gauge, and temperature, humidity and barometric pressure sensors. Most weather stations also measure indoor temperature and humidity while you can further upgrade your device to monitor solar radiation, UV, waterproof probes, additional temperature and humidity sensors, soil moisture and even light.

Also important to a weather station is a data logger, which records everything your station feeds it. The logger then sends all the information to a PC for your client to use at their leisure.

Although this may sound very expensive, there are plenty of consumer-friendly devices available nowadays that provide accurate information at reasonable prices. As always, the level of functionality and usefulness of this information increases with cost.

Just about everyone has seen those inexpensive little desktop units that show the current temperature on a large LCD screen, along with the current date and time. If you're lucky, yours might even show humidity and double as an alarm clock as well.

With a bit of research online, you could probably buy one of these for around $30, or possibly less. But, there's really no use for the information displayed on these units, as far as a home control system is concerned.

Spending around $600 more, however, will buy a weather station with a little more functionality and usefulness.

One example in this price range is the Oregon Scientific WMR200 wireless weather station. This particular unit comes with a wireless internal touch screen console and can communicate with external sensors located up to 100m away, via 433MHz RF transmission (open space). Note that you would need to reduce this distance to factor in multiple walls, roofs, etc.

The beauty of this unit is that it has the option of connecting to a PC via USB, to process the information gathered by the sensors to make weather forecasts. In addition, there is also an internal data logger built into the console for storing the sensor readings.

As the sensors are battery operated, there is also a 'low battery' alarm on the console to indicate when it's time to change batteries. The console itself comes with the option of 6V DC mains adaptor and the package also includes sensors to monitor and record the following:

- Temperature;
- Humidity;
- Wind speed;
- Wind direction;
- Wind chill;
- Dew point;
- Heat index;
- Barometric pressure; and,
- Rainfall.

Another nice feature of this unit is that it also incorporates a solar panel to ease the burden on the sensor

batteries, prolonging their lifespan. However, it's not clear how much of this stored information can be used by third party automation systems, and it does depend on how much you know about file conversions, and how well you can then take this information and process it to, say, close the blinds when the anemometer starts registering wind speeds above 1m/sec.

At the top end of the weather station world you can find systems that accurately log information, require no additional power to operate, other than that obtained from the sun, and allow other systems to process the collected information. Such a system is the Davis Vantage Pro2 Plus weather station.

This system is comprised of an indoor console and outdoor integrated sensor suite (ISS). All of the sensors in the ISS are powered by the sun through a solar panel. It comes in both a wireless and wired version for those applications that would make RF reception difficult or unreliable.

There is also an optional upgrade (known as Weatherlink) that allows all the readings to be logged and transferred to a PC in standard CSV format. This means that the information could easily be processed by other control systems if necessary.

As part of this same upgrade, four alarm dry contact conditions could be relayed to connected systems and programmed through the supplied software, such as "wind alarm true if

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wind speed is greater than 5m/sec and wind direction is south-west". This could then trigger a motorised awning action via a lighting control system. However, your client needs to be prepared to pay around $2,000 for this type of functionality.

If you feel that weather stations are overkill for what you want to achieve, you'll be glad to know that there are a number of other options available. Beware, however, as it all comes down to the application at hand. If you're not absolutely sure about what it is you want to achieve, it could end up costing hundreds, if not thousands, of dollars.

Somfy, best known for tubular blinds motors, have a really cool range of weather sensors for their own controllers, called EOLIS. What you

may not know is that you can tap into these and get the necessary signals you need for your lighting control system to, say, draw-in those motorised awnings when it's too windy, or open those blade louvres whenever there's rain.

These EOLIS sensors usually work with Somfy's SOLIRIS interface module. Signals can then be taken from this latter unit and processed by your control system to physically drive the blind's motor, unless you've decided to use Somfy's complete motor control solution. As always, there are reasons for and against using the manufacturer's motor controllers, the most significant being cost and safety.

Last, but by no means least, is the internet and the myriad sites that provide up-to-the-minute atmospheric information, in addition to weather forecasts over the ensuing days.

Websites such as www.weather.com and www.wunderground.com do just that.

Control systems can often link into these sites to retrieve specific pieces of information at different physical locations on each web page. These software packages then re-format this information and present the home owner with the relevant screens and information for that locale.

But, one issue that occurs from time to time with this format, is that whenever the website from which the information is sourced changes or updates and re-organises the information, the software reading this returns with erroneous information. However, this particular situation is usually closely monitored by control system software developers and is remedied via an online upgrade.

Although the weather monitoring solutions covered in this article are by no means exhaustive, they do serve as a realistic cross-section of the range available.

Either way it is imperative to know exactly what it is your client is trying to achieve by monitoring the weather as there are usually a range of solutions that will more than likely do the job. **CHA**

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